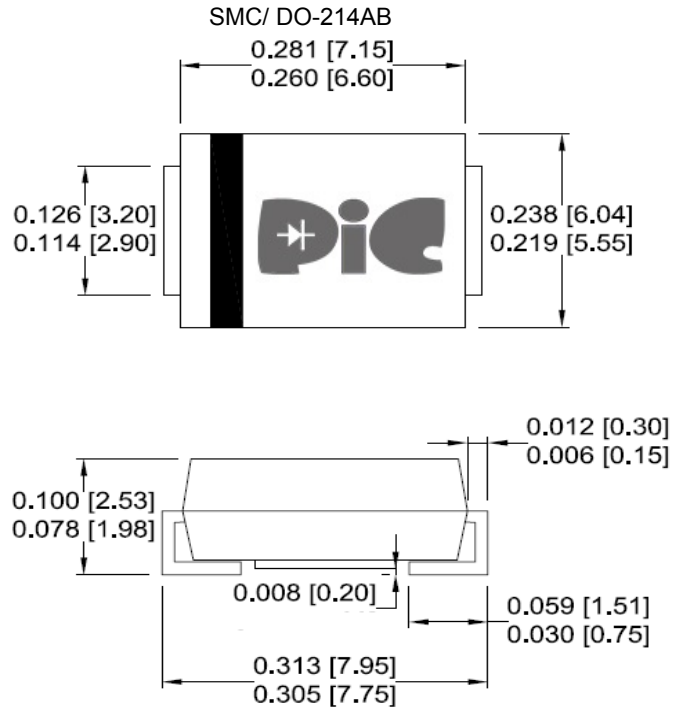


#### Features

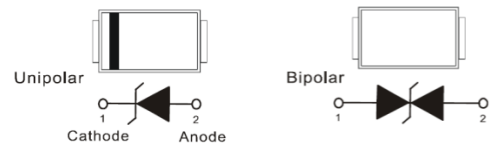
- Glass passivated chip
- 1500 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

#### Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



Dimensions: inch [mm]



#### Maximum Ratings( $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$P_{PP}$	1500	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	$P_D$	6.5	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	200	A
Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(3)</sup>	$V_F$	3.5/5.0	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to +150	$^\circ\text{C}$

#### Note:

(1)Non-repetitive current pulse per Fig.5 and derated above  $T_A = 25^\circ\text{C}$  per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F < 3.5\text{V}$  for devices of  $V_{BR} < 200\text{V}$  and  $V_F < 5.0\text{V}$  for devices of  $V_{BR} > 201\text{V}$



# 1.5SMC6.8A THRU 1.5SMC600A

Surface Mount Transient Voltage Suppressors

Breakdown Voltage:6.8 to 600V

Peak Pulse Power:1500W

**Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

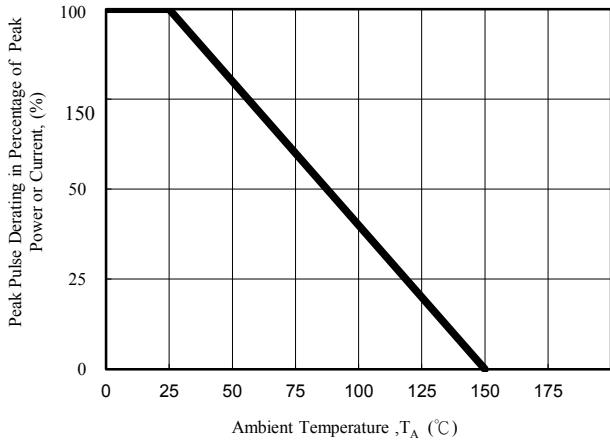


Fig. 1 - Pulse Derating Curve

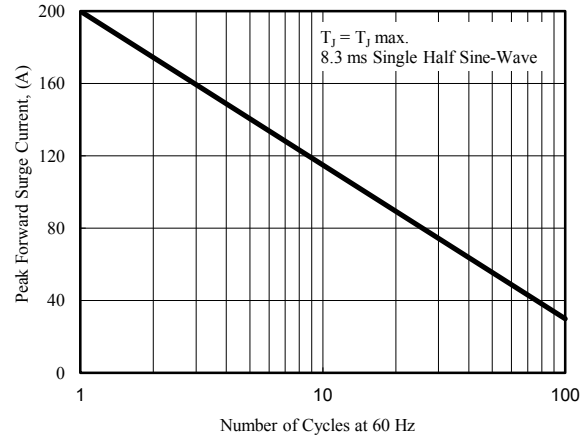


Fig. 2 - Maximum Non-Repetitive Surge Current

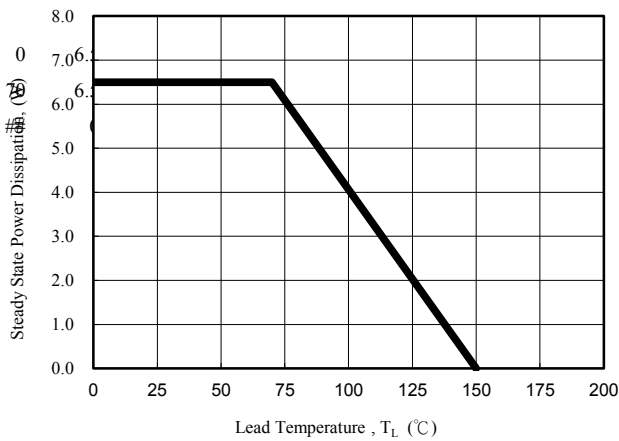


Fig. 3 - Steady State Power Derating Curve

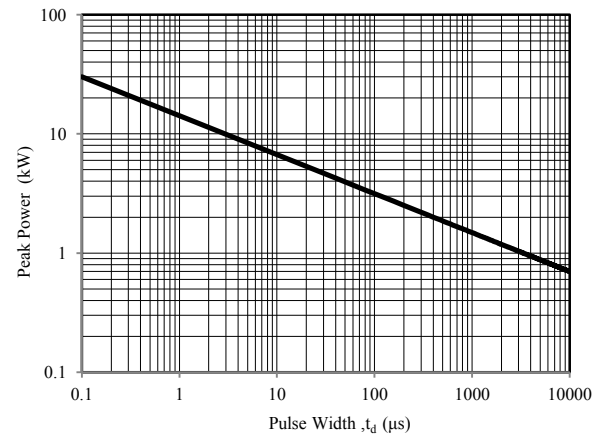


Fig. 4 - Peak Pulse Power Rating Curve

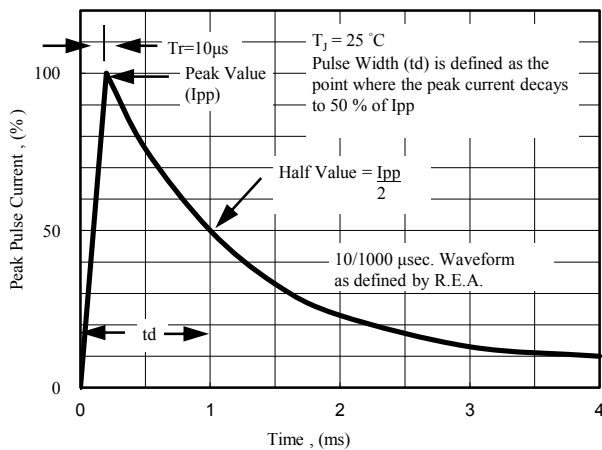


Fig. 5 - Pulse Waveform

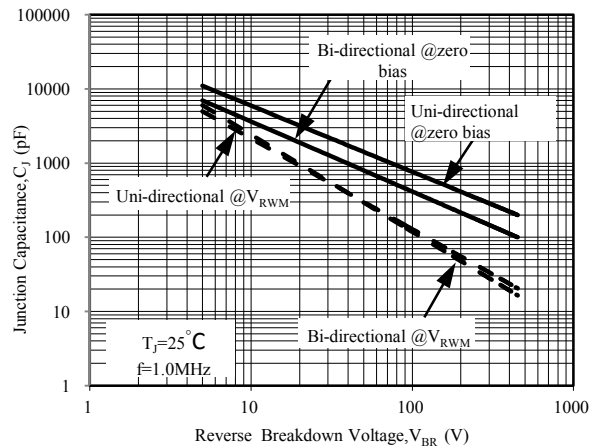


Fig. 6 - Typical Junction Capacitance



# 1.5SMC6.8A THRU 1.5SMC600A

Surface Mount Transient Voltage Suppressors

Breakdown Voltage:6.8 to 600V

Peak Pulse Power:1500W

**Electrical Characteristics(T<sub>A</sub>=25°C unless otherwise noted)**

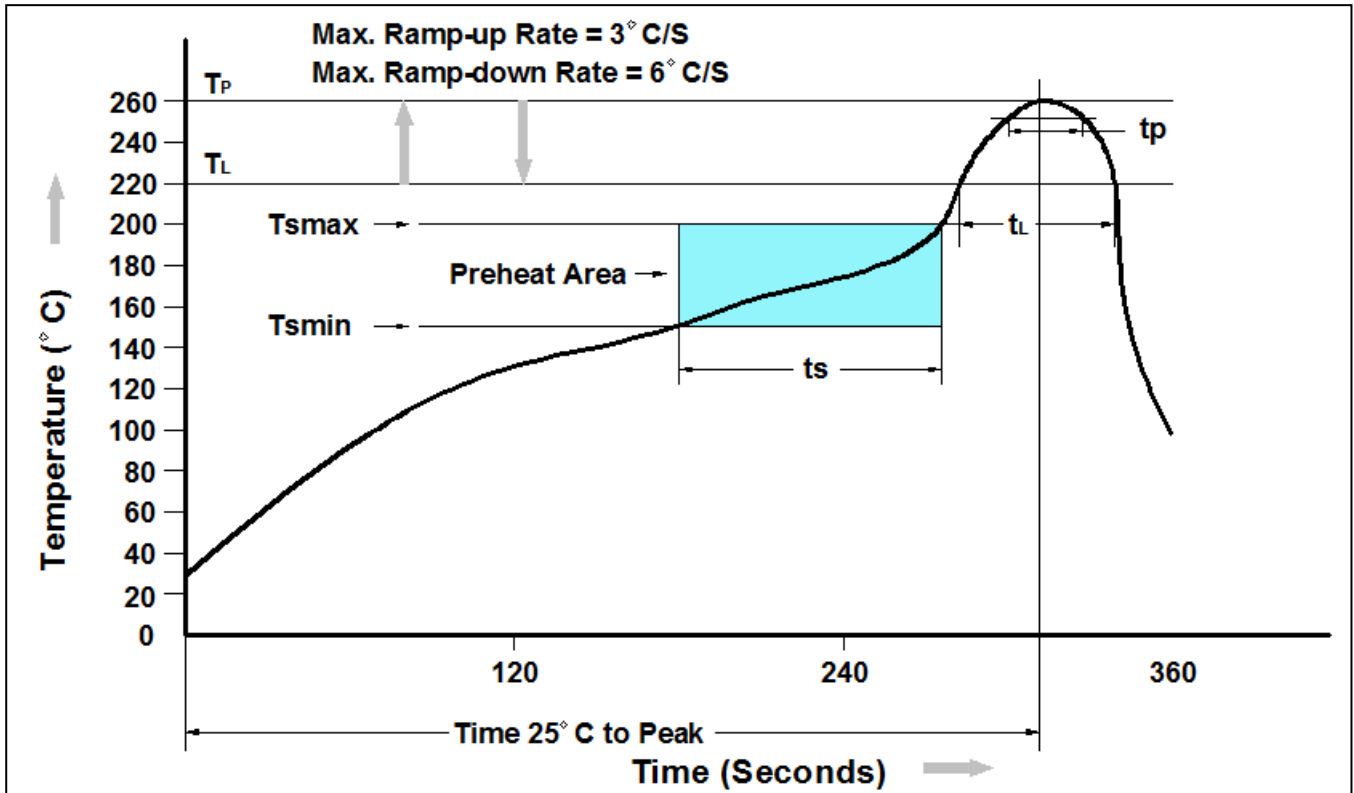
Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> (uA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> (A)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>PP</sub> (V)
		Uni	Bi	Min (V)	Max (V)	I <sub>T</sub> (mA)				
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	6.46	7.14	10	1000	5.8	142.86	10.5
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	7.13	7.88	10	500	6.4	132.74	11.3
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	7.79	8.61	10	200	7.0	123.97	12.1
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	8.65	9.56	1	50	7.8	111.94	13.4
1.5SMC10A	1.5SMC10CA	10A	10C	9.50	10.50	1	10	8.6	103.45	14.5
1.5SMC11A	1.5SMC11CA	11A	11C	10.45	11.55	1	5	9.4	96.15	15.6
1.5SMC12A	1.5SMC12CA	12A	12C	11.40	12.60	1	5	10.2	89.82	16.7
1.5SMC13A	1.5SMC13CA	13A	13C	12.35	13.65	1	1	11.1	82.42	18.2
1.5SMC15A	1.5SMC15CA	15A	15C	14.25	15.75	1	1	12.8	70.75	21.2
1.5SMC16A	1.5SMC16CA	16A	16C	15.20	16.80	1	1	13.6	66.67	22.5
1.5SMC18A	1.5SMC18CA	18A	18C	17.10	18.90	1	1	15.3	59.52	25.2
1.5SMC20A	1.5SMC20CA	20A	20C	19.00	21.00	1	1	17.1	54.15	27.7
1.5SMC22A	1.5SMC22CA	22A	22C	20.90	23.10	1	1	18.8	49.02	30.6
1.5SMC24A	1.5SMC24CA	24A	24C	22.80	25.20	1	1	20.5	45.18	33.2
1.5SMC27A	1.5SMC27CA	27A	27C	25.65	28.35	1	1	23.1	40.00	37.5
1.5SMC30A	1.5SMC30CA	30A	30C	28.50	31.50	1	1	25.6	36.23	41.4
1.5SMC33A	1.5SMC33CA	33A	33C	31.35	34.65	1	1	28.2	32.82	45.7
1.5SMC36A	1.5SMC36CA	36A	36C	34.20	37.80	1	1	30.8	30.06	49.9
1.5SMC39A	1.5SMC39CA	39A	39C	37.05	40.95	1	1	33.3	27.83	53.9
1.5SMC43A	1.5SMC43CA	43A	43C	40.85	45.15	1	1	36.8	25.30	59.3
1.5SMC47A	1.5SMC47CA	47A	47C	44.65	49.35	1	1	40.2	23.15	64.8
1.5SMC51A	1.5SMC51CA	51A	51C	48.45	53.55	1	1	43.6	21.40	70.1
1.5SMC56A	1.5SMC56CA	56A	56C	53.20	58.80	1	1	47.8	19.48	77.0
1.5SMC62A	1.5SMC62CA	62A	62C	58.90	65.10	1	1	53.0	17.65	85.0
1.5SMC68A	1.5SMC68CA	68A	68C	64.60	71.40	1	1	58.1	16.30	92.0
1.5SMC75A	1.5SMC75CA	75A	75C	71.25	78.75	1	1	64.1	14.56	103.0
1.5SMC82A	1.5SMC82CA	82A	82C	77.90	86.10	1	1	70.1	13.27	113.0
1.5SMC91A	1.5SMC91CA	91A	91C	86.45	95.55	1	1	77.8	12.00	125.0
1.5SMC100A	1.5SMC100CA	100A	100C	95.00	105.00	1	1	85.5	10.95	137.0
1.5SMC110A	1.5SMC110CA	110A	110C	104.50	115.50	1	1	94.0	9.87	152.0
1.5SMC120A	1.5SMC120CA	120A	120C	114.00	126.00	1	1	102.0	9.09	165.0
1.5SMC130A	1.5SMC130CA	130A	130C	123.50	136.50	1	1	111.0	8.38	179.0
1.5SMC150A	1.5SMC150CA	150A	150C	142.50	157.50	1	1	128.0	7.25	207.0
1.5SMC160A	1.5SMC160CA	160A	160C	152.00	168.00	1	1	136.0	6.85	219.0
1.5SMC170A	1.5SMC170CA	170A	170C	161.50	178.50	1	1	145.0	6.41	234.0
1.5SMC180A	1.5SMC180CA	180A	180C	171.00	189.00	1	1	154.0	6.10	246.0
1.5SMC200A	1.5SMC200CA	200A	200C	190.00	210.00	1	1	171.0	5.47	274.0
1.5SMC220A	1.5SMC220CA	220A	220C	209.00	231.00	1	1	185.0	4.57	328.0
1.5SMC250A	1.5SMC250CA	250A	250C	237.50	262.50	1	1	214.0	4.36	344.0
1.5SMC300A	1.5SMC300CA	300A	300C	285.00	315.00	1	1	256.0	3.62	414.0
1.5SMC350A	1.5SMC350CA	350A	350C	332.50	367.50	1	1	299.3	3.11	482.0
1.5SMC380A	1.5SMC380CA	380A	380C	361.00	399.00	1	1	324.9	2.86	524.4
1.5SMC400A	1.5SMC400CA	400A	400C	380.00	420.00	1	1	342.0	2.72	548.0
1.5SMC440A	1.5SMC440CA	440A	440C	418.00	462.00	1	1	376.2	2.47	602.0
1.5SMC500A	1.5SMC500CA	500A	500C	475.00	525.00	1	1	427.5	2.17	690.0
1.5SMC520A	1.5SMC520CA	520A	520C	494.00	546.00	1	1	444.6	2.09	717.6
1.5SMC550A	1.5SMC550CA	550A	550C	522.50	577.50	1	1	470.3	1.98	759.0
1.5SMC600A	1.5SMC600CA	600A	600C	570.00	630.00	1	1	513.0	1.81	828.0

**Note:** 1. The available parts are "A" type only, the parts without A (V<sub>BR</sub> is ±10%) is not available

2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices

3. For Bi-Directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limit is double

#### Recommand IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T <sub>smin</sub> )	150°C
Temperature Max. (T <sub>smax</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Average Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

#### Ordering Information

Part Number	Description	Quantity
1.5SMC6.8A~1.5SMC600A	SMC / TR	3000 pcs



# 1.5SMC6.8A THRU 1.5SMC600A

**Surface Mount Transient Voltage Suppressors**

**Breakdown Voltage:6.8 to 600V**

**Peak Pulse Power:1500W**

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